

What is claimed is:

1. A decorative hard coating comprising zirconium-aluminium oxycarbonitride.
2. The decorative hard coating as in claim 1, having a CIELAB color of 'L' of at least about 76, 'a' of at most about one, and 'b' of at most about five.
3. The decorative hard coating as in claim 2, having a Vickers hardness of at least about 15 GPa.
4. The decorative hard coating as in claim 1, having a CIELAB color of 'L' of at least about 76, '|a|' of at most about one, and '|b|' of at most about four.
5. The decorative hard coating as in claim 1, having a Vickers hardness of at least about 15 GPa.
6. The decorative hard coating as in claim 1, having a lower atomic concentration of aluminium than of zirconium.
7. The decorative hard coating as in claim 1, wherein atomic concentration of aluminium is less than about one fifth that of zirconium.
8. The decorative hard coating as in claim 1, having relative atomic concentrations of Zr:Al:N:O:C of approximately 56:10:23:7:4.
9. The decorative hard coating as in claim 1, overlying a substrate, wherein the decorative hard coating further comprises an intermediate layer of a metal, alloy or metal oxycarbonitride.

10. The decorative hard coating as in claim 1, wherein constituents of the decorative hard coating have varying relative concentrations through the thickness of the coating.

11. The decorative hard coating as in claim 1, overlying a substrate of metal, plastic, or ceramic.

12. The decorative hard coating as in claim 1, deposited by evaporation, arc deposition, sputtering, or a combination thereof.

13. The decorative hard coating as in claim 1, having a thickness between about 0.2 micron to about 3 microns.

14. The decorative hard coating as in claim 13, wherein the decorative hard coating consists substantially of zirconium-aluminium oxycarbonitride.

15. The decorative hard coating as in claim 1, overlying a user-visible portion of a household appliance, an automobile part, a kitchen or bathroom accessory, a watch, or jewellery.

16. A coated article comprising a substrate and a decorative hard coating above the substrate that comprises oxycarbonitrides of zirconium and aluminium.

17. The coated article as in claim 16, wherein the coated article is a household appliance, an automobile part, a kitchen or bathroom accessory, a watch, or jewellery.

18. A decorative hard coating comprising an aluminium or aluminium-rich oxycarbonitride layer on a zirconium-rich oxycarbonitride layer.

19. The decorative hard coating as in claim 18, wherein the zirconium-rich

oxycarbonitride layer has a CIELAB ‘|b|’ value of greater than about five, and the overall decorative hard coating has a CIELAB ‘|b|’ value of at most about five.

20. The decorative hard coating as in claim 18, having a CIELAB color of ‘L’ of at least about 76, ‘|a|’ of at most about 1, and ‘|b|’ of at most about five.

21. The decorative hard coating as in claim 18, having a Vickers hardness of at least about 15 GPa.

22. A decorative hard coating comprising an aluminium or aluminium-rich oxycarbonitride layer overlying a stainless steel-rich oxycarbonitride layer.

23. The decorative hard coating as in claim 22, having a CIELAB color of ‘L’ of at least about 76, ‘|a|’ of at most about 1, and ‘|b|’ of at most about five.

24. The decorative hard coating as in claim 22, having a Vickers hardness of at least about 15 GPa.

25. The decorative hard coating as in claim 22, applied to a substrate and further comprising a layer of metal, alloy, or metal oxycarbonitride.

26. A decorative hard coating comprising an underlayer and an overlayer, wherein the underlayer comprises metal-rich oxycarbonitride, and the overlayer comprises aluminium in some form.

27. The decorative hard coating as in claim 26, wherein the underlayer has a CIELAB color value ‘|b|’ of greater than about five, and the decorative hard coating has a CIELAB color value ‘|b|’ of at most about five.

28. The decorative hard coating as in claim 26, wherein the overlayer comprises aluminium in the form of aluminium oxycarbonitride or metallic aluminium.

29. The decorative hard coating as in claim 26, wherein the metal-rich oxycarbonitride is zirconium-rich oxycarbonitride.

30. The decorative hard coating as in claim 26, wherein the metal-rich oxycarbonitride comprises zirconium-rich oxycarbonitride or stainless steel-rich oxycarbonitride.

31. The decorative hard coating as in claim 26, wherein the overlayer consists substantially of aluminium or aluminium-rich oxycarbonitride, and the underlayer consists substantially of metal-rich oxycarbonitride.

32. The decorative hard coating as in claim 26, having thickness of about 0.2 micron to about 3 microns.

33. The decorative hard coating as in claim 26, wherein the underlayer has a CIELAB ‘|b|’ value of greater than about five, and the decorative hard coating has a CIELAB ‘|b|’ value of at most about five.

34. The decorative hard coating as in claim 26, having a CIELAB color of ‘L’ of at least about 76, ‘|a|’ of at most about 1, and ‘|b|’ of at most about five.

35. The decorative hard coating as in claim 26, having a Vickers hardness of at least about 15 GPa.

36. The decorative hard coating as in claim 26, having a Vickers hardness of at least about 15 GPa and a CIELAB color of ‘L’ of at least about 76, ‘|a|’ of at most about 1, and ‘|b|’ of at most about five; wherein the underlayer has a CIELAB ‘b’ value of greater than about five.

37. The decorative hard coating as in claim 26, deposited on a substrate by evaporation, arc deposition, sputtering, or a combination thereof.

38. A method of making a metallic white decorative coating comprising:
providing a substrate; and
forming a layer of zirconium-aluminium oxycarbonitride over the substrate.

39. The method according to claim 38, wherein the forming step comprises arc depositing zirconium and magentron sputtering of aluminium, with a gas mixture of argon, nitrogen, oxygen, and acetylene.

40. A method of making a metallic white decorative coating comprising:
providing a substrate;
forming a layer of metal-rich oxycarbonitride over the substrate; and
forming a layer of aluminium or aluminium-rich oxycarbonitride over the layer of metal-rich oxycarbonitride.

41. The method according to claim 40, wherein the step of forming the layer of metal-rich oxycarbonitride comprises depositing zirconium and aluminium, with a gas mixture including at least nitrogen.